

– 22. A method of treating a contact surface of a metal electrical contact, comprising:

electroplating a barrier layer over the contact surface;

selecting the barrier layer from the group including cobalt, cobalt-nickel alloys, cobalt-tungsten alloys, cobalt-nickel-tungsten alloys, and rhodium; and

forming the thickness of the barrier layer in the range of from about 0.00001 inch to about 0.0001 inch.

23. The method of claim 22, including etching the contact surface with a light acid before the electroplating step.

24. The method of claim 23, including activating the contact surface before the electroplating step.

25. The method of claim 22, wherein the barrier layer is electroplated by adjusting a plating current density in the range of from about 10 to about 150 amperes per square foot.

26. The method of claim 25, wherein the electroplating step includes preparing a plating bath solution having at least one of cobalt sulphamate, cobalt sulfate, and cobalt chloride.

27. The method of claim 26, including preparing the plating bath solution with a tungsten salt, an organic acid, and ammonium oxide.

28. The method of claim 27, wherein the tungsten salt is sodium tungstate.

29. The method of claim 27, wherein the organic acid is citric acid.

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30. The method of claim 25, including preparing the plating bath solution with at least one of nickel sulfamate, nickel sulfate, nickel chloride and organic additives.

31. The method of claim 22, including providing the metal electrical contact in the form of a copper contact member.

32. The method of claim 22, comprising applying an outer layer over and in contact with the barrier layer.

33. The method of claim 32, including selecting the outer layer from the group including tin, gold, palladium, platinum, silver, and combinations thereof.

34. The method of claim 22, including applying a strike layer on said contact surface before electroplating the barrier layer.